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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,387	03/15/2001	Craig M. Carpenter	MI22-1559	8779
21567	7590	12/21/2004	EXAMINER	
WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			ZERVIGON, RUDY	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/810,387

Applicant(s)

CARPENTER ET AL.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 and 37-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 and 37-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/12/4;11/3/3</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 27, 2004 has been entered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "showerhead" must be shown or the feature canceled from the claim. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified

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and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 44 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant's claimed "showerhead" is not described in the specification.

Claim Rejections - 35 USC § 102/103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1, 2, 4-23, and 25-29 are rejected under 35 U.S.C. 102(b) as anticipated by Fukui et al (USPat. 5,002,928) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fukui et al (USPat. 5,002,928). Fukui teaches a deposition apparatus (Figure 1) for depositing superconducting films (column 2, lines 14-36). Although Fukui does not discuss CVD (chemical vapor deposition) operations, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order

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to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

Fukui further teaches a deposition chamber (14) defined partly by a chamber body (“solution-escaping inhibitor”; column 5, lines 1-2) including a lid¹ (top tapered portion of 14). Fukui further teaches a needle valve / isolation mechanism (6) that seals fluid flow between an outermost (outside chamber 14) and innermost (inside chamber 14) surface of the chamber body (14; column 4, lines 53-59). Fukui further teaches a part of the valve housing (inside surface of 7; Figure 1; column 4; lines 28-31, 36-39, 53-60) between the innermost (inside chamber 14) and outermost surfaces (outside chamber 14) of the chamber body (14; column 4; lines 28-31, 36-39, 53-60). Fukui further teaches the valve body (1) including a portion of the chamber body (14) as at least a part of the valve housing (column 4; lines 28-31, 36-39, 53-60). Fukui further shows, the valve body (1) having an entirety of a seat (inside surface of 7; Figure 1; column 4; lines 28-31, 36-39, 53-60) within the chamber lid¹ above (top tapered portion of 14). Fukui further teaches at least a part of the process chemical inlet (11) to the valve body (1) between the innermost and outermost surfaces of the chamber body, and wherein the chamber body (14) forms a part of a material inlet (11, 12). Fukui further teaches the part of the valve housing (fitting in 14 for valve 1) comprised by the portion of the lid is defined by a cylindrical opening (conduit for stem 3; column 4, line 34) in the lid. The valve body (1) further comprising a stem (3) coincident with the central axis of the cylindrical opening at least partially within the cylindrical opening. Fukui further teaches:

¹ Lid – 5: something that confines, limits, or suppresses - Merriam-Webster’s Collegiate Dictionary - 10th Ed. p.671

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- i. The entirety of the valve seat (inside surface of 7; Figure 1) is between an innermost surface of the lid inside the chamber and an outermost surface of the lid outside the chamber (Figure 1)
- ii. The part of the valve seat (6/7 interface) comprised by the portion of the lid is defined by a beveled and annular lid surface around a cylindrical opening through the lid, the valve body further comprising a plug (6) complementary to the beveled lid surface - see vertical and slanted tapering at the 6/7 interface in Figure 1

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Fukui is not clear in either Fukui's specification or Fukui's not-to-scale drawings as to the relative thickness of Fukui's lid and Fukui's chamber body (see Figure 1)². In the event that Fukui is not deemed to anticipate Applicant's claimed invention of "similar thickness" between Fukui's lid and Fukui's chamber body:

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Fukui to optimize the relative thicknesses of Fukui's lid and Fukui's chamber body.

Motivation for Fukui to optimize the relative thicknesses of Fukui's lid and Fukui's chamber body is for scaling Fukui's deposition apparatus to accommodate plural nozzle structures as taught Fukui (column 3, lines 29-33). Further, it is well established that changes in apparatus dimensions are within the level of ordinary skill in the art. (Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

7. Claims 3 and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al (USPat. 5,002,928). Fukui is discussed above. Fukui does not teach that the relative dimensions between Fukui's seat, chamber lid thickness, and chamber lid width as shown by Fukui's Figure 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Fukui to optimize the relative dimensions of Fukui's seat, chamber lid thickness, and chamber lid width.

²Proportions of features in a drawing are not evidence of actual proportions when drawings are not to scale. Because the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. However, the description of the article pictured can be relied on, in combination with the

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Motivation for Fukui to optimize the relative dimensions of Fukui's seat, chamber lid thickness, and chamber lid width is to provide for added structural integrity and/or to accommodate a requisite dimension of the substrate (17, Figure 1), further, for scaling Fukui's deposition apparatus to accommodate plural nozzle structures as taught Fukui (column 3, lines 29-33). Further, it is well established that changes in apparatus dimensions are within the level of ordinary skill in the art. (Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04). Further, proportions of features in a drawing are not evidence of actual proportions when drawings are not to scale. Because the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art. (In re Wright, 193 USPQ 332 (CCPA 1977). MPEP 2125.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al (USPat. 5,002,928) in view of Waterfield (USPat. 4,319,737). Fukui is discussed above. However, Fukui does not teach a diaphragm valve. Waterfield teaches a diaphragm valve (Figure 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Fukui to replace his needle valve with Waterfield's diaphragm valve.

Motivation for Fukui to replace his needle valve with Waterfield's diaphragm valve is to provide an alternate and equivalent valve for delivering process fluids.

9. Claims 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al (USPat. 5,002,928) in view of Jeong, Kyung Cheol (USPat. 5,853,484). Fukui is discussed above. Fukui further teaches a deposition apparatus as discussed above including a deposition chamber (14; Figure 1) defined in part by a cylindrical body and a circular lid³ (top tapered portion of 14) matched to a diameter of the cylindrical body; an opening (7; Figure 1) formed through a thickness of the lid, the opening defining at least in part of a valve seat (tapered 6/7 interface; Figure 1); a valve assembly (7) positioned to match a valve plug (6; Figure 1) or diaphragm with the valve seat (tapered 6/7 interface; Figure 1).

Fukui does not teach his valve body is adapted to receive external control signals. Fukui does not teach a distribution showerhead positioned to receive deposition gas from the opening when the valve assembly is in an open position.

Jeong teaches valve bodies (32-1; Figure 2) adapted to receive external control signals (22; Figure 2; column 3, lines 1-19) for delivering process gasses to Jeong's CVD chamber (10; Figure 2; column 2; lines 15-22). Jeong further teaches a gas distribution showerhead manifold (19; Figure 2) positioned to receive CVD deposition gases (abstract) from an opening (16; Figure 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Jeong's control means and gas distribution showerhead to Fukui's deposition apparatus.

³ Lid – 5: something that confines, limits, or suppresses - Merriam-Webster's Collegiate Dictionary - 10th Ed. p.671

Motivation to add Jeong's control means and gas distribution showerhead to Fukui's deposition apparatus is for achieving CVD film thickness uniformity as taught by Jeong (column 3; lines 11-15) in CVD operations.

Response to Arguments

10. Applicant's arguments filed September 27, 2004 have been fully considered but they are not persuasive.

11. Applicant's claim requirement of "similar thicknesses" between Applicant's lid and Applicant's chamber body is a broad recitation of Applicant's claimed invention. The argument is the central position of the response. Applicant is directed to the body of the above new ground of rejection in response. Further, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Specifically, as previously recited, proportions of features in a drawing are not evidence of actual proportions when drawings are not to scale. Because the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art. (In re Wright, 193 USPQ 332 (CCPA 1977). MPEP 2125.

12. Applicant states:

“

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...the Office relies upon needle valve holder 7 as disclosing the claimed chamber lid, needle valve holder does not disclose the chamber lid of claim 37.

“

Applicant is in error. The Examiner has repeatedly maintained that Fukui teaches a lid⁴ (top tapered portion of 14) not Applicant's proposed lid 7.

13. Applicant states:

“

...Fukui also fails to disclose the housing of claim 27 including at least a part of the outer surface of the lid, at least a part of the opening sidewalls of the lid or both. Fukui additionally fails to disclose at least a part of the seat including at least a part of the inner surface of the lid, at least a part of the opening sidewalls pf the lid, or both. claims 28, 29, and 40 depend from claim 27 and are not anticipated at least for such reason as well as for the additional limitations of such claims not disclosed.

“

In response, the Examiner reasserts that Fukui indeed teaches the housing (inside surface of 7; Figure 1; column 4; lines 28-31, 36-39, 53-60) of claim 27 includes at least a part of the outer surface of the lid⁵ (top tapered portion of 14). Fukui additionally teaches at least a part of the seat (inside surface of 7; Figure 1; column 4; lines 28-31, 36-39, 53-60) including at least a part of the inner surface of the lid⁶ (top tapered portion of 14). In particular, Fukui's housing (inside surface

⁴ Lid – 5: something that confines, limits, or suppresses - Merriam-Webster's Collegiate Dictionary - 10th Ed. p.671

⁵ Lid – 5: something that confines, limits, or suppresses - Merriam-Webster's Collegiate Dictionary - 10th Ed. p.671

⁶ Lid – 5: something that confines, limits, or suppresses - Merriam-Webster's Collegiate Dictionary - 10th Ed. p.671

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of 7; Figure 1; column 4; lines 28-31, 36-39, 53-60) and lid (top tapered portion of 14) share continuous structural identity as shown by Fukui's Figure 1.

14. Applicant states that the combination of Fukui et al (USPat. 5,002,928) in view of Waterfield (USPat. 4,319,737) would destroy the use of Fukui's apparatus when replacing Fukui's needle valve with Waterfield's diaphragm valve. The Examiner disagrees. All valves, by definition, including Fukui's and Waterfield's valves, function to control fluid transmission and delivery.

15. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, motivation for Fukui to replace his needle valve with Waterfield's diaphragm valve is to provide an alternate and equivalent valve for delivering process fluids. Further both references are in the field of Applicant's endeavor, namely, fluid delivery.

16. In response to applicant's argument that there is no suggestion to combine the references of Fukui et al (USPat. 5,002,928) in view of Jeong, Kyung Cheol (USPat. 5,853,484), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

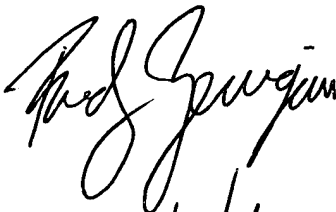
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USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, it was asserted that motivation to add Jeong's control means and gas distribution showerhead to Fukui's deposition apparatus is for achieving CVD film thickness uniformity as taught by Jeong (column 3; lines 11-15) in CVD operations. Further both references are in the field of Applicant's endeavor, namely, fluid delivery.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (571) 272-1439.


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